

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number  
**WO 2005/055344 A3**

(51) International Patent Classification<sup>7</sup>: **H01M 4/52**,  
4/58, 10/36

(21) International Application Number:  
PCT/JP2004/018085

(22) International Filing Date:  
29 November 2004 (29.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2003-407542 5 December 2003 (05.12.2003) JP  
2004-334800 18 November 2004 (18.11.2004) JP

(71) Applicant (for all designated States except US): **NISSAN MOTOR CO., LTD.** [JP/JP]; 2, Takara-cho, Kanagawa-ku, Yokohama-shi, Kanagawa 2210023 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ITOU, Takanori**.  
**SAITO, Takamitsu**. **HORIE, Hideaki**.

(74) Agents: **MIYOSHI, Hidekazu** et al.; Toranomom Kotohira Tower, 2-8, Toranomom 1-chome, Minato-ku, Tokyo 105-0001 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

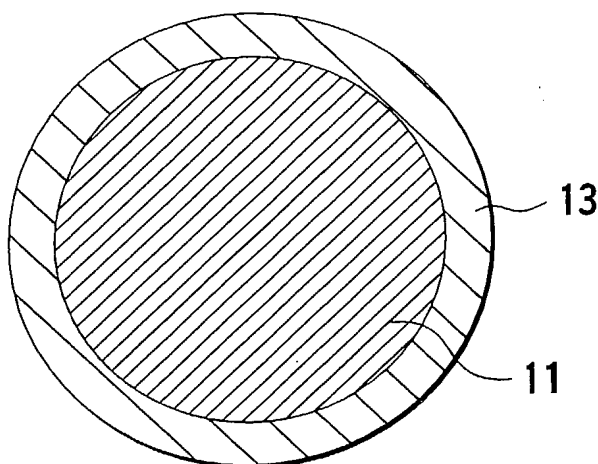
**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
2 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POSITIVE ELECTRODE MATERIAL FOR NON-AQUEOUS ELECTROLYTE LITHIUM ION BATTERY AND BATTERY USING THE SAME



(57) Abstract: A positive electrode material for non-aqueous electrolyte lithium ion battery (31, 41) of the present invention has an oxide (11) containing lithium and nickel, and a lithium compound (13) which is deposited on a surface of the oxide (11) and covers nickel present on the surface of the oxide (11). By this structure, it is possible to suppress decomposition of an electrolysis solution as much as possible and drastically reduce swelling of the batteries (31, 41).

WO 2005/055344 A3